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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,747	09/12/2003	Thomas D. Williams	62451.00002	5988
24998	7590	03/25/2009		
DICKSTEIN SHAPIRO LLP			EXAMINER	
1825 EYE STREET NW			AUGUSTINE, NICHOLAS	
Washington, DC 20006-5403				
		ART UNIT	PAPER NUMBER	
		2179		
		MAIL DATE	DELIVERY MODE	
		03/25/2009	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/660,747

Applicant(s)

WILLIAMS ET AL.

Examiner

NICHOLAS AUGUSTINE

Art Unit

2179

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7, 10, 12-20, 22 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 10, 12-20, 22 and 24-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

- A. This action is in response to the following communications: Amendment filed: 1/21/2009. This action is made **Final**.
- B. Claims 7, 10, 12-20, 22 and 24-32 remain pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 7, 10, 12-20, 22 and 24-32 are rejected under 35 U.S.C. 102(b) as anticipated by Moezzi et al (US 5,850,352), herein referred to as Moezzi or, in the

alternative, under 35 U.S.C. 103(a) as obvious over Sorokin et al (US Pat. 6,522,325), herein referred to as "Sorokin".

As for claim 7, Moezzi teaches a method for virtually navigating an environment in three dimensions (col.23, line 25), the method comprising: defining virtual paths in the environment (col.9, lines 54-67; system creates virtual synthesized images for navigation in the immersive scene); capturing images of the space environment from a plurality of cameras (col.23, lines 13-14); receiving a navigation request; generating a plurality of synthetic images corresponding to viewpoints along the previously defined virtual paths (col.36, lines 13-34) and transmitting a sequence of synthetic images corresponding to viewpoints along the virtual path that most closely matches the navigation request (col.10, lines 42-67; col.26, lines 6-38), wherein at least one of the synthetic images has a perspective different than any of the plurality of cameras (col.23, lines 2-41, 53-63; col.41, line 59 – col.42, line 61); As in the alternative, Moezzi does not specifically in great detail with exact words teach the notion of constraining user movement to viewpoints along the previously defined virtual paths, however in the same field of endeavor Sorokin teaches the notion of constraining user movement to viewpoints along the previously defined virtual paths (col.8, lines 28-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the predefined virtual paths of Sorokin the telepresence system (visual reality) of Moezzi, this is true because Sorokin solves the problem of providing an interface to a user to control a telepresence system, to navigate camera array telepresence system and

method (col.3, lines 1-23; "summary").

As for claim 10, Moezzi teaches the method for allowing claim 7, wherein positions of the virtual paths and viewpoints are based at least in part on positions of the cameras (figure 1A).

As for claim 12, Moezzi teaches the method of claim 7, wherein the defining step is performed once and the capturing, receiving, generating, and transmitting steps are performed repeatedly (col.26, lines 12-36).

As for claim 13, Moezzi teaches a method for efficiently providing a virtual presence of within a three-dimensional scene to a plurality of simultaneous users (col.23, line 25; figure 2), the method comprising:
defining a plurality of virtual paths within the scene, each path terminating at a junction;
defining a plurality of viewpoints along each virtual path (col.9, lines 54-67); capturing real time images of the scene from a plurality of cameras (col.10, lines 55-56);
generating a synthetic image corresponding to each viewpoint based on the captured real-time images (col.10, lines 55-56; col.23, lines 13-14); combining synthetic images corresponding to the plurality of viewpoints along a predefined virtual path to produce a sequence of images (col.10, lines 42-63); receiving a navigation request from at least one user of the plurality of simultaneous users; selecting a predefined virtual path of the

plurality of virtual paths based on the navigation request; and transmitting the sequence of images along the selected virtual path to the at least one user (col.10, lines 42-63); wherein at least one of the synthetic images has an optical axis different than any of the plurality of cameras (col.23, lines 2-41, 53-63; col.25, lines 5-20; col.26, lines 6-53). As in the alternative, Moezzi does not specifically in great detail with exact words teach the notion of constraining user movement to viewpoints along the previously defined virtual paths, however in the same field of endeavor Sorokin teaches the notion of constraining user movement to viewpoints along the previously defined virtual paths (col.8, lines 28-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the predefined virtual paths of Sorokin the telepresence system (visual reality) of Moezzi, this is true because Sorokin solves the problem of providing an interface to a user to control a telepresence system, to navigate camera array telepresence system and method (col.3, lines 1-23; "summary").

As for claim 14, Moezzi teaches the method of claim 13, wherein each sequence of images begins with an image from a viewpoint at a first junction and ends with an image from a viewpoint at a second junction (col.33, lines 20-35; figures 6-8).

As for claim 15, Moezzi teaches the method of claim 13, further comprising queuing a second navigation request received from the at least one user while a sequence of images is being transmitted to the at least one user (col.26, lines 37-38).

As for claim 16, Moezzi teaches the method of claim 13, wherein the plurality of cameras comprises pairs of cameras, each pair having at least partially overlapping views and similar viewing angles (figure 4).

As for claim 17, Moezzi teaches the method of claim 13, wherein the plurality of cameras comprises cameras arranged substantially parallel to the virtual paths (figures 4 and 6; col.9, lines 54-67).

As for claim 18, Moezzi teaches the method of claim 13, wherein clusters of at least some of the plurality of cameras are located near junctions (col.44, lines 44-67).

As for claim 19, Moezzi teaches the method of claim 13, wherein the plurality of simultaneous users comprises at least one thousand users (col.23, lines 53-63).

As for claim 20, Moezzi teaches a system for efficiently providing a virtual presence within a three-dimensional scene the system comprising:

a plurality of cameras comprising pairs of cameras, each pair configured to capture at least partially overlapping real-time views of at least a portion of the scene at similar viewing angles (figure 4); at least one image processor configured to generate synthetic images corresponding to viewpoints along predefined virtual paths within the scene based on at least two real-time views and combine the images into sequences of images (figure 17); at least one router configured to select sequences that best match

respective navigation requests; at least one user processor configured to compose a video stream comprising at least one sequence selected by the router (col.38, lines 28-50); and a plurality of user displays coupled to at least one user processor via a data network and configured to display a respective composed video stream (figure 17): wherein at least one of the synthetic images is from a perspective different than any of the plurality of cameras (note the analysis of claim 7 above).

As in the alternative, Moezzi does not specifically in great detail with exact words teach the notion of constraining user movement to viewpoints along the previously defined virtual paths, however in the same field of endeavor Sorokin teaches the notion of constraining user movement to viewpoints along the previously defined virtual paths (col.8, lines 28-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the predefined virtual paths of Sorokin the telepresence system (visual reality) of Moezzi, this is true because Sorokin solves the problem of providing an interface to a user to control a telepresence system, to navigate camera array telepresence system and method (col.3, lines 1-23; "summary").

As for claim 22, Moezzi teaches the system of claim 21, wherein at least some of the sequences of images comprise synthetic images corresponding to the viewpoints along two or more virtual paths sharing at least one common junction (figure 4, col.24, lines 4-33).

As for claim 24, Moezzi teaches the system of claim 20, wherein the at least one processor comprises at least two processors and the system further comprises a load balancer configured to balance users a load among the at least two processors (col.37, lines 49-50).

As for claim 25, Moezzi teaches the system of claim 20, wherein the displays are further configured to transmit navigation requests (col.26, lines 33-36).

As for claim 26, Moezzi teaches the system of claim 20, wherein at least one of the displays is a personal computer (figure 17).

As for claim 27, Moezzi teaches the system of claim 20, wherein the data network is the Internet (figure 17; network).

As for claim 28, Moezzi teaches the system of claim 20, wherein the system is configured to provide a virtual presence to more simultaneous users than the number of processors (col.23, lines 53-63).

As for claim 29, Moezzi teaches the method of claim 7, wherein the at least one of the synthetic images has an optical axis different than any of the plurality of cameras (figure 2 and 4; col.24, lines 31-33).

As for claim 30, Moezzi teaches the method of claim 13, wherein the at least one of the synthetic images has an optical axis parallel to an optical axis of at least one of the plurality of cameras (figure 2 and 4; col.24, lines 31-33).

As for claim 31, Moezzi teaches the method of claim 13, wherein the at least one of the synthetic images is from a perspective different than any of the plurality of cameras (figure 2 and 4; col.24, lines 31-33).

As for claim 32, Moezzi teaches the system of claim 20, wherein the at least one of the synthetic images has an optical axis different than any of the plurality of cameras (figure 2 and 4; col.24, lines 31-33).

(Note :) It is noted that any citation to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. In re Heck, 699 F.2d 1331, 1332-33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006,1009, 158 USPQ 275, 277 (CCPA 1968)).

Response to Arguments

Applicant's arguments filed 1/21/2009 have been fully considered but they are not persuasive.

After careful review of the amended claims (given the broadest interpretation) and the remarks provided by the Applicant along with the cited reference(s) the Examiner does not agree with the Applicant for at least the reasons provided below:

A1. Applicant argues that Moezzi fails, however, to disclose the notion of constraining user movement "to viewpoints along the previously defined virtual paths" as claimed. Further stating that, "restricting the movement of objects within a synthetic image, as in Moezzi, however, is very different than limiting the synthetic images to viewpoints along the previously defined virtual paths as claimed".

R1. Examiner does not agree, in such that the system of Moezzi teaches that the area of interest has predefined camera placements wherein then synthetic images are generated as a result of the camera placements, it is then stored in a database and configured to be mapped to a 3D model which represents the real world environment wherein the cameras are placed. The user is then able to remotely navigate through the real world environment, wherein the user is presented with camera images and synthetic images, the end result being a visual reality where the user can navigate throughout. With this understanding it is arguable that Moezzi does in fact teach predefined virtual paths because there has to be predefined camera placements with camera images, synthetic images generated by the camera images (also predefined), 3D map that is modeled after the area the cameras are placed in (predefined). These factors are used to provide a visual reality (VisR) for the user to navigate within, where the user is able to choose their own path of navigation within the predefined space, thus it is true to say that Moezzi does in fact teach "generating a plurality of synthetic images corresponding to viewpoints along the previously defined virtual paths; and transmitting a sequence of synthetic images corresponding to viewpoints along the virtual path that

most closely matches the navigation request", as recited by the claims (col.41, line 59 – col.42, line 61). However to expedite prosecution in an alternative Moezzi in view of Sorokin will be presented in a new ground of rejection to demonstrate that not only does Moezzi teach the claim language but so does the combination of Moezzi in view of Sorokin as presented as an alternative.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas Augustine whose telephone number is 571-

270-1056 and fax is 571-270-2056. The examiner can normally be reached on Monday - Friday: 9:30am- 5:00pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 571-272-4847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven B Theriault/
Primary Examiner, Art Unit 2179

/Nicholas Augustine/
Examiner
Art Unit 2179
March 21, 2009